

WHAT IS CLAIMED IS:

5 1. A suspension system for a four wheeled vehicle, said suspension system comprising a first damper, a second damper, a third damper and a fourth damper, each of said dampers comprising a cylinder body and a piston arranged to reciprocate within said damper, each piston dividing an interior of each cylinder body into an upper chamber and a lower chamber, each piston also comprising a connecting passage that places said upper chamber and said lower chamber in fluid communication, said lower chamber of said first damper and said lower chamber of said second damper being interconnected with a pressure regulator, said pressure regulator comprising a first pressure regulating chamber and a second pressure regulating chamber, a first movable wall defining at least a portion of said first pressure regulating chamber and a second movable wall defining at least a portion of said second pressure regulating chamber, said lower chamber of said first damper being connected to said first pressure regulating chamber and said lower chamber of said second damper being connected to said second pressure regulating chamber, a passage extending between said first pressure regulating chamber and said second pressure regulating chamber, said pressure regulator further comprising a third pressure regulating chamber, said third pressure regulating chamber being connected with said third damper and said fourth damper through at least a first conduit, a flow regulator being disposed along said first conduit and being in fluid communication with said first conduit, said flow regulator containing a first flow regulating chamber and a second flow regulating chamber, and said first flow regulating chamber and said first conduit communication through a throttled passage.

25 2. The suspension system of Claim 1, wherein said third damper and said fourth damper are interrelated through a second pressure regulator and said second pressure regulator defines a connection between said third damper and said fourth damper and said third pressure regulating chamber.

3. The suspension system of Claim 1, wherein said first damper is a front left damper and said second damper is a front right damper.

30 4. The suspension system of Claim 1, wherein said first damper is a front left damper and said second damper is a rear left damper.

Cl. 2, 19
1/18

B2/Conte

Sub 1

Sub B1

0075994-01101

5

15

20

25

30

5. The suspension system of Claim 1, wherein said first damper is a front left damper and said second damper is a rear right damper.

6. The suspension system of Claim 1, wherein said flow regulator comprises a third flow regulating chamber and said first flow regulating chamber and said second flow regulating chamber are segregated from each other by a movable partition and said first flow regulating chamber and said first conduit communicate through a throttled passage extending through said movable partition and said flow regulator and said pressure regulator are connected by a second conduit as well.

7. The suspension system of Claim 6, wherein said first conduit, said flow regulator and said second conduit form a passageway between said third damper, said fourth damper and said pressure regulator.

8. The suspension system of Claim 6, wherein said flow regulator further comprises a third pressure regulating chamber, said third pressure regulating chamber being separated from said second pressure regulating chamber by a second movable partition.

9. The suspension system of Claim 8, wherein said flow regulator further comprises a sub-cylinder, said sub-cylinder being in fluid communication with said third pressure regulating chamber and said sub-cylinder comprising at least one movable partition.

10. The suspension system of Claim 9, further comprising a throttled passage connecting said sub-cylinder and said third pressure regulating chamber.

11. The suspension system of Claim 6, further comprising a throttle disposed along said first conduit.

12. The suspension system of Claim 11, wherein said throttle is positioned at a juncture being fluid lines extending from said third damper and said fourth damper.

13. The suspension system of Claim 1, wherein said first movable wall and said second movable wall are connected such that said first movable wall and said second movable wall move synchronously.

14. The suspension system of Claim 1, wherein said first movable wall contains a recess and said second movable wall is disposed within said recess.

15. The suspension system of Claim 1, wherein said first flow regulating chamber and said second flow regulating chamber are integrally formed in a single component.

16. The suspension system of Claim 1, further comprising a throttle positioned along said first conduit between said flow regulator and said pressure regulator.

17. A suspension system comprising a first damper, a second damper, a third damper and a fourth damper, said first damper and said second damper forming a first damper pair and said third damper and said fourth damper forming a second damper pair, said first damper pair and said second damper pair being fluidly connected through means for regulating flow into and out of said first damper pair and said second damper pair.

18. The suspension system of Claim 17 further comprising a first pressure regulator connecting said first damper pair, whereby said means for regulating flow regulates flow into a chamber of said first pressure regulator.

19. The suspension system of Claim 18 further comprising a second pressure regulator connecting said second damper pair, whereby said means for regulating flow regulates flow into a chamber of said second pressure regulator.

20. The suspension system of Claim 17, wherein said first pair of dampers comprises a front left damper and a front right damper.

21. The suspension system of Claim 17, wherein said first pair of dampers comprises a front left damper and rear right damper.

22. The suspension system of Claim 17, wherein said first pair of dampers comprises a front left damper and rear left damper.

23. A suspension system comprising a first movement restricting portion and a second movement restricting portion, said first movement restricting portion and said second movement restricting portion being interconnected by a fluid passage, a flow regulator being in fluid communication with said fluid passage, said flow regulator having a fluid chamber and a moveable wall.

24. The suspension system of Claim 23, wherein said fluid chamber communicates with said fluid passage through a throttle.

25. The suspension system of Claim 23, wherein said fluid chamber is interposed along said fluid passage such that fluid in said fluid passage will necessarily flow through said fluid chamber.

26. The suspension system of Claim 25, wherein said flow regulator further comprises a second fluid chamber and said fluid chamber and said second fluid chamber are separated by a moveable partition.

27. The suspension system of Claim 26 further comprising a throttle positioned in said moveable partition such that fluid can move between said fluid chamber and said second fluid chamber through said throttle in said moveable partition.

28. The suspension system of Claim 23 further comprising a throttle positioned along said fluid passage between said flow regulator at least one of said first movement restricting portion and said second movement restricting portion.

29. The suspension system of Claim 28 further comprising a throttle positioned along said fluid passage between said flow regulator and another of said at least one of said first movement restricting portion and said second movement restricting portion.

30. The suspension system of Claim 23, wherein said flow regulator comprises at least two throttle portions.

31. A suspension system for a four wheeled vehicle, said suspension system comprising a first damper, a second damper, a third damper and a fourth damper, each of said dampers comprising a piston device arranged to act upon fluid within at least two fluid chambers, each of the fluid chambers being in fluidic communication with each other, at least one of the chambers of the first damper and at least one of the chambers of the second damper being interconnected with a pressure regulator, said pressure regulator including a first pressure regulating chamber and a second pressure regulating chamber, a first movable wall defining at least a portion of said first pressure regulating chamber and a second movable wall defining at least a portion of said second pressure regulating chamber, said at least one chamber of said first damper being connected to said first pressure regulating chamber and said at least one chamber of said second damper being connected to said second pressure regulating chamber, a passage extending between said first pressure regulating chamber and said second pressure

5
A 4/2
5/8 B
regulating chamber, said pressure regulator further comprising a third pressure regulating chamber, said third pressure regulating chamber being connected with said third damper and said fourth damper through at least a first conduit, a flow regulator being disposed along said first conduit and being in fluid communication with said first conduit, said flow regulator containing a first flow regulating chamber and a second flow regulating chamber, and said first flow regulating chamber and said first conduit communication through a throttled passage.

10 32. The suspension system of Claim 31, wherein said third damper and said fourth damper are interrelated through a second pressure regulator and said second pressure regulator defines a connection between said third damper and said fourth damper and said third pressure regulating chamber.

15 33. The suspension system of Claim 31, wherein said flow regulator comprises a third flow regulating chamber and said first flow regulating chamber and said second flow regulating chamber are segregated from each other by a movable partition and said first flow regulating chamber and said first conduit communicate through a throttled passage extending through said movable partition and said flow regulator and said pressure regulator are connected by a second conduit as well.

20 34. The suspension system of Claim 33, wherein said first conduit, said flow regulator and said second conduit form a passageway between said third damper, said fourth damper and said pressure regulator.

25 35. The suspension system of Claim 33, wherein said flow regulator further comprises a third pressure regulating chamber, said third pressure regulating chamber being separated from said second pressure regulating chamber by a second movable partition.

30 36. The suspension system of Claim 35, wherein said flow regulator further comprises a sub-cylinder, said sub-cylinder being in fluid communication with said third pressure regulating chamber and said sub-cylinder comprising at least one movable partition.

37. The suspension system of Claim 36, further comprising a throttled passage connecting said sub-cylinder and said third pressure regulating chamber.

38. The suspension system of Claim 6, further comprising a throttle disposed along said first conduit, and said throttle being positioned at a juncture being fluid lines extending from said third damper and said fourth damper.

39. The suspension system of Claim 31, wherein said first movable wall and said second movable wall are connected such that said first movable wall and said second movable wall move synchronously.

40. The suspension system of Claim 31, wherein said first movable wall contains a recess and said second movable wall is disposed within said recess.

Ad d2